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ABSTRACT

This paper discusses the change from traditional instructional packages to flexible learning systems in higher education in South Africa, and the role of academic libraries in supporting and facilitating the new educational philosophy and methods. The first section presents a definition of flexible learning and addresses the implications of the following three dimensions of flexible learning: delivery methods and improved access, including focus on massification of higher education and flexible delivery of education as an instrument of massification in South Africa; learner-centered approach; and the role of resource-based learning. Resource-based learning and information literacy are covered in the second section, including the interdependence of the two concepts and their implications for academic libraries. The third sections describes two strategies to ensure that the library plays a central role in learning activities--adapting the role of the library and information professional, and developing user education in support of flexible learning. Information user training as a means of survival in the 21st century is discussed in the next section. The conclusion outlines actions that the library and information profession must take in order to stay relevant in the 21st century. (Contains 25 references.) (MES)

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USER-EDUCATION IN A FLEXIBLE LEARNING ENVIRONMENT - AN OPPORTUNITY TO STAY RELEVANT IN THE 21ST CENTURY

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1. INTRODUCTION

Higher education in South Africa is in the process of changing from what is referred to as the 'traditional instructional packages' to 'flexible learning systems' Universities and Technikons are at present exploring the concept of flexible learning and reflecting on its implications in terms of adjustment of curricula, course content and especially delivery methods. The academic libraries that form part of these higher education institutions should likewise be positioning themselves to support and facilitate the new educational philosophy and methods.

2. DEFINITION OF FLEXIBLE LEARNING

The literature on flexible learning confirms that there is no single definition for the term 'flexible learning' and that the term has come to be interpreted very loosely indeed. According to Ellington, (2) the Flexible Learning in Higher Education Network (FLHEN) deliberately did not attempted to define the term, because they prefer practitioners to interpret it in any way they like. A study of some of the definitions that do exist indicates that the flexibility that the term 'flexible learning' refers to has various interrelated dimensions. The following three definitions illustrate this:

- Flexible learning is a generic title for the provision of alternatives to traditional education. It includes concepts like open learning, distance learning and resource-based learning. There is a tendency to combine these concepts in the use of the phrase 'open and flexible learning' (OFL). (4) This term seems to indicate improved access to, and the expansion of, higher education opportunities.
- Although flexible learning is a strategy embraced by distance education institutions, it is not limited to these institutions. It is a combination of contact classes, multiple applications of information technology, the use of study material (print based or other formats) and a variety of assessment methods that can be used as an extension of both contact and distance education (5).
- Ellington (6) in his turn defines 'flexible learning' as a term that covers all situations where students have a say in how, when and where learning takes place regardless of whether the learning takes place within the context of traditional contact education or within non-traditional learning contexts like open learning or distance education. This indicates a renewed focus on the learner as the customer, which led to the initial concept of learner-centred education.

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Together, these three definitions list the most important aspects or dimensions of flexible which are focused on in the relevant literature:

- Delivery methods (traditional, open learning, distance education
- Learner-centred approach
- The role of resource-based learning

The implications of these different dimensions will now be discussed briefly.

2.1. Delivery methods and improved access

2.1.1 Focus on massification of higher education

Both the developed and the developing worlds are experiencing a surge of demand for new education and training opportunities. The factors underlying this demand are the following:

- Economic globalisation. Skills needed in the workplace are now relevant beyond national and geographic boundarie, since business is no longer restricted to a specific country or place. Students are in need of better preparation for the world of work, in order to help them prosper in the rapidly changing world of employment. (7), 8) People already active in the world of work in their turn need to re-skill in order to continue to be relevant in the workplace.
- The technological revolution which demands ever-increasing levels of technological literacy.
- In South Africa specifically there is a drive for the massification of higher education as a means of socio-economic transformation and redress of past inequalities. Some of the challenges faced by the South African higher education system are the provision of access to higher education for as many people as possible and developing teaching strategies and delivery methods to meet the needs of larger student intakes. It is anticipated that the number of students in South Africa will increase from 800 000 in 1995 to 1 500 000 in 2005. (9)

2.1.2 Flexible delivery of education as an instrument of massification in South Africa

There seems to be little doubt that distance education, incorporating the principles of open learning and resource-based learning, will play a major role in providing flexible access to higher education in South Africa. (10) Flexible learning is regarded as an extension of the concept of open learning designed to give learners a choice of learning strategies and a choice of place, pace and time of learning which can be instrumental in the massification of higher education. The National Qualifications Framework (NQF) is seen as the vehicle for the implementation of flexible delivery of education. The aim of the NQF is to promote access to education and to "make it possible for all candidates to achieve national qualifications through a wide variety of mechanisms and a multiple delivery system". (11) A similar system already exists in Britain in the form of National and Scottish Vocational Qoalifications (NVQ's and SVQ's) (12) while Australia's National Training Reform Agenda aims to develop flexible workplace skills or multi-skilling.

At this stage of the development of flexible learning in South Africa, there is a tendency to equate flexible learning with the flexible delivery or provision of education opportunities. The focus is largely on how to deliver eduction to incre. sing numbers of students, with little debate about the inherent characteristics of flexible learning a nd the implications thereof for education providers. Although flexible delivery is an important aspect of flexible learning, this is not all there is to it. The interrelatedness of the different dimensions of the concept makes it imperative to give due consideration to the other two aspects listed above, namely the learner-centered approach and the role of resource-based learning..

2.1.3 Learner-centred approach

Learner-centred education is a philosophy of how teaching should take place. It focuses on the relationship between learner and teacher, and the nature of the curriculum. The point of departure of this philosophy is that people learn best when they are interested in a topic and when they need specific skills

to solve a problem. These skills are acquired through active exploration and construction rather than the passive attendance of lectures. (13) This philosophy is not new but the application as a dimension of flexible learning is. Within the flexible learning strategy the focus is on the student or learner's learning activity with the twofold aim of:

- meeting the learner's need for learning
- giving learners increasing responsibility for their own learning and development

This constitutes a refocus of education away from the traditional teacher or lecturer centred model where the lecturer is the expert on a subject and aims to teach a given delimited subject content to learners by means of formal lectures in the case of contact education and study guides in the case of distance education.

2.1.4 The role of resource-based learning in flexible learning

The third dimension of flexible learning that needs to be considered is the role of resource-based learning.

2.1.4.1 Definition of resource-based learning

It is sometimes suggested that flexible learning has its roots in resource-based learning because the lecturer in the flexible learning situation, where the focus is on the learner, is no longer the only or most important supplier of information. The lecturer integrates the use of multiple resources into the learning process with a view to enable students to:

- access a variety of sources of learning without intervention from the lecturer
- select and analyse information on a given subject and present it in the form of a report
- plan how to use resources for different purposes
- develop information management skills
- develop competence in using sources of information like libraries (14)

Brown (15) defines the following types of resources:

- **Paper based learning resources** including course guides, booklets, manuals, study units, textbooks, reading guides guides, lecture notes
- **Computer-based materials** including computer-based tutorials, on-line objective testing and multimedia.
- **Networked learning resources** like on-line tutorials, networked study programmes and computer conferences.
- **Media-based material** including audiotapes, video tapes, transparencies, and slides

The elements of resource-based learning as listed above, indicate that it is a learning strategy which requires the ability to find and use information and knowledge effectively, since it integrates both thinking strategies (especially those involving the effective use of information) and the use of multiple resources into the learning process.

3 RESOURCE-BASED LEARNING AND INFORMATION LITERACY

There is a clear overlap in the concept of resource-based learning and the concept of information literacy as it is used in the library and information science environment. In order to illustrate this, the definition of information literacy will be discussed and compared with that of resource-based learning.

3.1 Definition of information literacy

The definition of information literacy that is widely accepted in library and information science literature is that of the American Library Association (ALA) which states that to be information literate a person must be able to recognise when information is needed and have the ability to locate, evaluate and use

effectively the needed information'.(16) In the South African context the 'operational definition' of the concept developed by Sayed and De Jager (17) is most appropriate: 'Information literacy refers to the ability of learners to access, use and evaluate information from different sources, to enhance learning, solve problems and generate new knowledge'. It needs to be emphasised that the concept of information literacy includes both information skills (the ability to handle information effectively) and library skills (where and how to look for information, or information gathering skills). (18) An added dimension of information gathering skills which is also related to library skills, is computer literacy in the sense of acquiring a set of skills to facilitate locating and usefully organising information in cyberspace - notably the Internet.

Behrens (19) also points out that information literacy 'lies at the higher end of the literacy continuum'. This continuum can be said to start with the basic literacy skills of reading and writing, continue through the ability to locate needed information to the ultimate goal of evaluating and applying the information to solve a specific problem. It can be presented as follows:

Literacy --> Library skills --> Computer literacy --> Information literacy

Figure 1: The information literacy continuum

True information literacy can be said to be dependent upon acquiring skills in library use and knowledge of information resources.

3.2 The interdependence between resource-based learning and information literacy

The extent of the interdependence is very evident from the following summary of the attributes of both resource-based learning and information literacy:

Resource-based learning	Information literacy
Ability to access information sources	Ability to access information sources
Use a variety of information sources	Use a variety of information sources
Select and analyse information	Evaluate information
Present information in the form of a report	Generate new knowledge
Competence in using libraries	Library use skills

Table 1: Comparison between resource-based learning and information literacy

Apart from the similarities listed above, both resource-based learning and information literacy are associated with acquiring skills in preparation for lifelong-learning. (20, 21, 22) The overlap between the two concepts indicates that information literacy can be regarded as the basis of resource-based learning. Resource-based learning cannot be completely successful if the students have not mastered both the lower and the higher end of the information literacy continuum. This interdependence can be represented as follows:

Resource-based learning

Literacy --> Library skills --> Computer literacy --> Information literacy

Figure 2: The interdependence between resource-based learning and information literacy

3.3 Implications for academic libraries

The factor that needs to be considered urgently by academic libraries is the fact that successful resource-based learning at the higher education level is only possible if learners are in possession of a range of information handling skills (including library use skills) - if they are in fact fully information literate. Research in the field of library and information science in South Africa, especially that done by Behrens [23] has however indicated that many students entering higher education institutions are unprepared with regard to the information skills required for study at tertiary level, as a result of shortcomings in the primary and secondary schooling system. The research by Behrens was done before the focus on flexible learning, which means that her findings will be even more valid today in view of the demands of this learning strategy on the learner. Moore [24] also points out that learners who started their education in the previous educational dispensation where the focus was on rote learning, will experience problems in adapting to the flexible learning environment. Experience has taught librarians that students lacking information skills do not do independent study but expect all relevant facts to be provided by the lecturers, or by the librarian.
Lack of information handling skills or information literacy is not a uniquely South African problem. The report of the National Committee of Inquiry into Higher Education in Britain which appeared in 1997 (known as the Dearing Report) states that 'Library staff has told us (the Committee) that they have to spend more time supporting students, and that many students come from school ill prepared for this independent form of learning'. [25]

Academic libraries can expect one of two results from the focus on flexible and resource-based learning:

- A growing perception that there is no need to use the library due to the practice (especially in distance education environments) of supplying students with a complete set of resources in the form of mass-produced, pre-packed information kits.
- A renewed interest in, and pressure for the provision of user education programmes, starting with basic library skills for first year students and developing towards cognitive skills such as synthesising and evaluating information at third year and post-graduate level.

4 STRATEGIES FOR PLAYING A CENTRAL ROLE IN LEARNING ACTIVITIES

In view of the characteristics and demands of open and flexible learning, academic libraries need to revisit their current practices and focus on strategies to ensure that the library plays a central role in learning activities. The following two strategies seem to be a good starting point.

4.1 Adapting the role of the library and information professional

The practice of assembling so-called complete information kits for students, referred to in the previous paragraph, is a reality and it is not to be expected that librarians can or should try to stem this tide. The fact is that it does offer some sort of solution for giving learners, and especially distance education learners, access to information they would not otherwise have had. Supplying students with information kits does not, however, guarantee successful learning. The role of the library should be to warn against the possibility that learners will become only partially information literate. Providing them with all the necessary information sources might help learners to acquire the skills at the higher end of the information literacy continuum, but not the information gathering skills required to support life-long learning. Only students already posessing the relevant information literacy skills enabling them to evaluate information and to apply it in the learning situation (and later on in the workplace), will really benefit from this practice. Chalkley [26] and the UK Department of Employment, [27] warns that supplying students with complete information kits will deny them the challenge of researching their own information and transfer dependence on lecturers to dependence on the information kits. These students will probably find themselves at a disadvantage in the workplace as well, because there it will be expected of them to be able to gather their own information - employers are not likely to supply them with information kits to rely upon.

To counter these negative effects, librarians should play a more central part in the learning process as a whole. This strategy has been advocated by various authors, inter alia Behrens, [28] Sayed & De Jager, [29] Shepherd, [30] Stephens. [31] Such a strategy has been implemented at the North East Wales Institute (NEWI) in Wrexham, Wales. At this higher education institution, senior librarians have been accepted as full members of course teams which develop curricula and courses. This enables them to contribute research skills, study skills training and individual project guidance regarding relevant paper-based and electronic resources, to support curriculum delivery. [32]

4.2 Developing user education in support of flexible learning

4.2.1 From user education to information user training

A variety of terms and definitions are used to describe the training of library users. Sager [33] uses the terms bibliographic instruction and user training as synonyms and states that these include any and all teaching activities that are planned, designed and offered to improve the skills of the users in order to be able to collect and organise information independently. According to Salony [34] the terms library instruction, user training, bibliographic instruction and information literacy are generally used when reference is made to the teaching of library users. Behrens [35] states that library training is a teaching programme to equip users with information skills that enable them to use the sources and facilities of the library effectively. Van Brakel [36] uses the term library education and states that it has the aim of effecting any form of independence which will enable the user to handle practical information sources with the greatest efficiency.

Behrens [37] found that library skills is the traditional ability of being able to use the services, sources and facilities of the library effectively. These include the skills to be able to locate information through, for instance, the catalogue or index. A person who has these skills is therefore library literate. She also claims that a broader concept of library skills has emerged as a result of the information literacy movement. The modern view is that the skills are not limited to library use but also includes the skills to locate and utilise information outside the library. In view of this, Henning [38] uses the term "information user training" to indicate training that consists of all the components to render students library and information literate. Information user training also indicates 'portable' skills that are applicable both inside and outside the library.

4.2.2 Necessity for information user training

Van Brakel [39] found that since the forties there have been indications of library orientation and library education at academic libraries. Even at that time, this was a definite function of the reference section of the university library, but its development and growth was sporadic and slow. The large variety of formats in which information is available and the limited exposure to libraries at primary and secondary levels were factors that increased the need for this training. The training was also seen as essential for students who enter their careers after their tertiary training and who must remain up to date with the most recent and relevant information published daily in vast quantities. This is even more true now than it was in the first half of the twentieth century.

Behrens [40] found that user training is important to equip students for the continued education demanded by modern society. The aim of the training should be to expand from the education in library skills to a wider spectrum of information skills demanded by information literacy. The report of the Work group on Information Competence [41] highlights information skills as a critical competency required by all students. The work group emphasised the necessity of information skills, especially the ability to locate information because:

- There is such an abundance of information available that learners cannot be expected to, and in fact do not, remember everything they are introduced to in lectures. They must be able to find information as and when it is needed.
- New information is generated constantly and in addition to this, information changes so quickly

that that which is currently appropriate could cease to be so in future. Learners must have information finding skills to enable them to keep up to date.

The work group also recommended that a programme for information skills be launched for distance education. Research by Henning (42) confirms the urgent need for information-user training for distance education learners. Her findings also indicates that information user training should be a discrete, compulsory and credit-bearing module for first year students.

4.2.3 Influence of information technology on information user training

Salony (43) claims that information technology had a great influence on the development of libraries and on information user training. It is apparent that this influence will become even greater in the future. With the increased in use of, Internet, for example, the focus on concepts of information literacy will intensify.

Rodriques (44) alleges that information technology offers many opportunities for librarians to offer decentralised services and training. Thus a virtual classroom can be established for the training and students can receive such training through multimedia lessons.

Wielhorski (45) states that it is important from the planning stage of library services to determine how the users can be reached through the help of information technology. Traditional user guides can be made available electronically. At the University of Michigan, for instance, a project has been developed jointly by the library and the Department of Library and Information Science. Subject-oriented electronic guides are available on the World Wide Web network for students. Electronic classrooms can be used to offer the training such as those at the Steen Library at Stephen F Austin State University, which are equipped with interactive video and sound equipment. Commercial electronic guides for reading compact disc databases are already available for training. Computer-supported education can also be used to compile programmes according to the needs of the specific institution.

5 INFORMATION USER TRAINING AS A MEANS OF SURVIVAL IN THE 21ST CENTURY

There has never been any doubt in the minds of library and information professionals that information user training is a very important facet of a relevant library and information service - whatever the kind of library. For academic libraries which form part of higher education institutions embracing the philosophy of flexible learning, it has now become even more important. Henning (46) found that there is a need for continued information user training. It is not something that can be completed in the first year because each level of study, from first year to post-graduate level, requires additional information literacy competencies. If we go back to the information literacy continuum, it can be represented as in Figure 3.

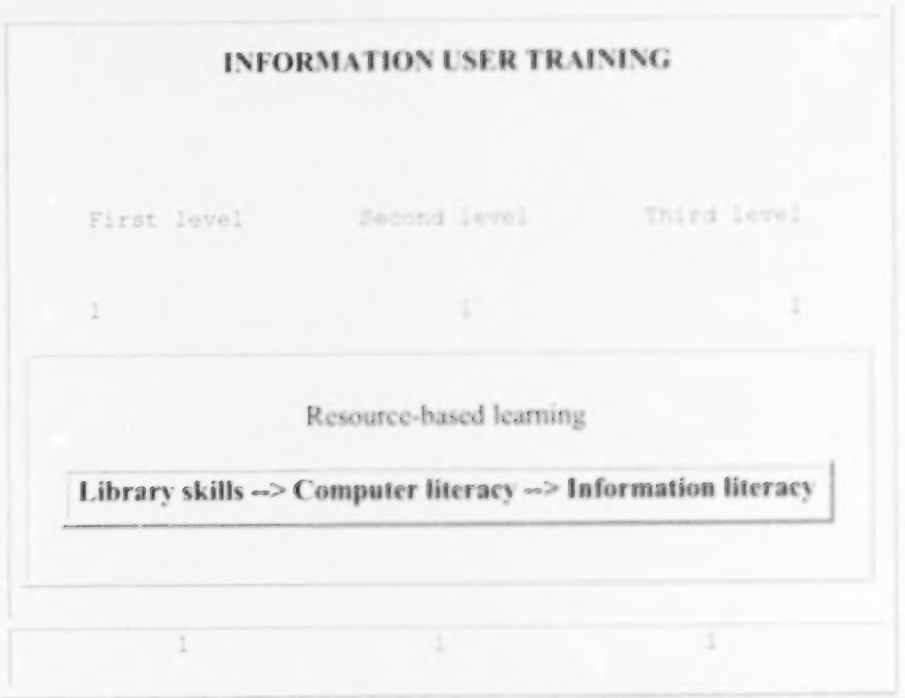

Figure 3: Information user training in support of flexible learning

The competencies needed for each level of study have been identified in broad terms as indicated in Figure 3. Information user training should therefore be developed on different levels. It may be that the levels will coincide with formal levels of study but it might also happen that a first year student is already library literate and will be able to move on to the second level immediately. It might likewise happen that a senior student needs to start at the first level of training because of a lack of experience and knowledge about using the library to support his or her studies. The implication is of course that students will have to be assessed to determine their level of competency, and that attaining these competencies should be compulsory - not just something that is nice to have.

6 CONCLUSION

The focus on flexible learning and by implication information literacy, might prove to be the best opportunity the library and information profession has ever had to play a truly central role in education provision in South Africa. It is a means to survive and stay relevant in the 21st century if the profession

is able and willing to do the following:

- Develop campaigns to make academic staff aware of the implications of flexible learning for students in terms of information literacy skills and the need for information-user training to be compulsory and credit bearing.
- Plan for the changing role of library and information professionals and ensure that they form part of the process of curriculum development.
- Actively developing information-user training programmes on different levels and in different formats from traditional print-based material to interactive computer-based programmes.

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